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November 28, 1995

NOV 1995

The Secretary
Federal Communications Commission
Washington, DC 20554

Re: En Banc Hearing on Digital Television
MM Docket No. 87-268

Dear Sir:

I enclose an original and nine copies of the proposed remarks to be delivered by John D. Abel, President/CEO of Broadcast Partners, at the referenced en banc hearing on December 12, 1995.

Also enclosed are a brief summary of those remarks, and a speaker biography (which includes a description of Broadcast Partners).

If you have any questions, please contact Mr. Abel at 703-715-3003.

Yours truly,

Marvin J. Diamond

cc: Policy and Rules Division
Mass Media Bureau

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Biography of John D. Abel
and
Description of Datacast Partners

John D. Abel is President, CEO of Datacast Partners, a new partnership formed by two major television broadcasters, Chris-Craft Industries and LIN Television, with additional partners to be announced in a few weeks. Datacast Partners is developing technology, digital content and applications, and distribution networks for broadcasting multimedia content initially to computers using the television broadcast spectrum.

Prior to the formation of Datacast Partners in August 1995, Dr. Abel was Executive Vice President of the National Association of Broadcasters in Washington, DC. He began at NAB in 1983 as Senior Vice President of the NAB Research and Planning Department and was appointed Executive Vice President in January 1986. Seven of the NAB departments and divisions reported to him. In addition to his duties at the NAB, he was a founding Board member of the Advanced Television Test Center and was Vice Chairman of the Systems Subcommittee of the FCC's Industry Committee on Advanced Television Service.

Prior to joining NAB, Dr. Abel was Chairman and Professor of the Department of Telecommunication at Michigan State University in East Lansing. He served as a consultant with the U.S. Federal Communications Commission during 1977-78. He also owned a large media research and consulting firm known as the ELRA Group.

John is the author of more than 50 journal articles, books and research reports. He has served as a consultant to numerous radio and television stations, cable systems, communications law firms and other telecommunications industries. He is in demand as a speaker worldwide for his informative and challenging presentations on new communication technologies and their impact on existing and established media.

Dr. Abel holds M.A. and Ph.D. degrees from Indiana University in Bloomington.

Summary of Comments of
John D. Abel
for
***En Banc* Hearing on Digital Television**
MM Docket No. 87-268

Datacast Partners, of which I am President/CEO, has undertaken a speculative venture to develop digital applications which can be transmitted in the current NTSC television channels and later can be transferred to the new ATV channels when they have been assigned and activated. Significantly, digital broadcasting is the only medium in the digital revolution that is proposing to provide major digital services for free.

Since existing NTSC receivers do not have the memory or intelligence to receive or interpret digital data, we intend initially to transmit data to computers via NTSC transmissions, and to develop add-in cards to enable computers to receive and process the data. The National Data Broadcasting Committee, created by the NAB and EIA in 1993, has been testing and evaluating two systems for inserting digital data into the NTSC signal -- one from Digideck (which Datacast Partners supports) and one from WavePhore. One or both systems will eventually be recommended to the FCC by the Committee, and I encourage the Commission to act expeditiously on that recommendation.

The initial, experimental digital data applications which Datacast Partners is developing for NTSC channels, while substantially less than what can ultimately

be implemented on the ATV channels (for example, the initial applications will not be capable of full motion video), will nonetheless provide a valuable laboratory for testing consumer preferences and producer costs for various kinds of applications. Such applications can include the transmission of storm warnings, school closings and other emergency data, as well as educational and interactive material for children.

One particular application we are keying on is the support of current marketing campaigns. Television spot advertisements can be supplemented with digital data that will give consumers the supporting information they need to make their purchasing decisions. Digital broadcasting permits much more information to be transmitted about products in support of advertising campaigns; and of course it is advertising that enables broadcasting to be free and universal.

Datacast Partners is confident that the knowledge gained from these initial experiments in digital data broadcasting will springboard more effective use of the ATV channels.

En Banc Hearing on Digital Television
Federal Communications Commission
Tuesday, December 12, 1995
Washington, DC

Comments of
John D. Abel
President/CEO
Datacast Partners
12110 Sunset Hills Road, Suite 450
Reston, Virginia 22090

Introduction

Those involved in television broadcasting worldwide are preparing themselves for new forms of broadcasting brought about by digital technology. The transition to fully digital broadcast systems has been underway for several years, but the major obstacles to fully digitizing the broadcast system are the transmission pathway and the home receiver. For the most part, the only portion of the distribution system that is still analog is the transmission pathway from the broadcaster's antenna to the receiving antenna of the consumer. Only when the transmission pathway is fully digitized and broadcasters actually transmit entirely in digital will the full benefits of wireless digital broadcasting be realized.

Not only will digital broadcasting replace existing forms of real time broadcasting, but it also will permit broadcasting to evolve to a much, much more consumer oriented, friendlier and more information-packed medium than it is today as an analog distribution medium, while continuing to provide a free and universal service to the public. Significantly, wireless digital broadcasting is the only medium in the current digital revolution that is proposing to provide major digital services for free, and this free service means that all Americans can have greater access to information that is demanded of an information-based society.

Datacast Partners

My company is Datacast Partners, a partnership of two major broadcasting companies, Chris Craft and LIN Television, with more partners to be announced in a few weeks. We have taken on the difficult task of attempting to develop digital applications in the current NTSC channels. Our purpose is to test these limited applications in NTSC transmissions and to transition what we learn to the broader capabilities of ATV. Our speculative venture involves risk, determination and foresight. We are employing unproven technologies in uncharted applications within a less than optimal host -- NTSC television. We are confident that the knowledge gained from this experiment will springboard more effective use of the ATV channels.

Since existing television receivers contain almost no memory or intelligence to interpret and receive digital data, our initial plan is to broadcast a digital data bitstream to computers. The digital bitstream that is riding along with the NTSC analog transmission will be received on specially built decoders for current computers. We plan to build an add-in card for existing computers, while new computers can have this decoding receiver as a part of the original equipment.

The issues to be faced in terms of completing the development of this interim system of digital broadcasting are as follows: First, we need to complete the

testing and evaluation through the National Data Broadcasting Committee. Second, a standard(s) must be recommended to the FCC and we would hope that a standard is ultimately selected. Third, the encoder and decoders need to be developed and the encoders must be installed in TV stations and the decoders distributed as add-in cards for existing high end computers and as original equipment for new computers sold in the marketplace.

The Benefits of Wireless Broadcasting

There are many benefits of wireless broadcasting as we know it today, including virtually universal coverage of all households with a national and a corresponding local service, a transmission infrastructure that has been fully deployed and developed over many years, the ability of broadcasts to be received in both a stationary and portable environment, extremely low cost receiving equipment that has also been perfected over many years and very efficient use of existing spectrum allocated for broadcasting.

The conversion to digital can and should build upon this current system of broadcasting and make it even better. Broadcasters will be able to do more and consumers will enjoy more from broadcasting in the future if broadcasting can make the transition to a fully digital distribution system.

Digital Standards for Data Broadcasting

In 1993, the National Association of Broadcasters (NAB) and the Electronic Industries Association (EIA) created the National Data Broadcasting Committee. The purpose of this committee is to establish a standard for high speed data broadcasting using the current NTSC television spectrum. The committee requested proposals from the technical community and initially five proposals were submitted for testing and evaluation. Eventually three of the five proponents dropped out of the process because they could not achieve a data broadcasting throughput rate of at least 192 Kbps. That left two companies vying to be selected as the standard for data broadcasting in the United States, Digideck and WavePhore.

Laboratory testing of these two systems was conducted by the Advanced Television Test Center in Alexandria, Virginia in 1994 and 1995. The two systems from Digideck and WavePhore use quite different approaches for inserting data into the TV signal. Digideck places a bitstream into the Vestigial Sideband of a current TV channel. The Digideck data stream is not part of the video signal and is not recognized by television receivers. The WavePhore system inserts the data into the active video of the TV picture.

Digideck, the approach favored by Datacast Partners, places a 700 Kbps total data payload into the VSB region of the TV channel. The throughput rate for Digideck is 525 Kbps, the difference between 525 Kbps and 700 Kbps being forward error correction (FEC).

The next step is to conduct field tests of one or both of the systems. These field tests are likely to be conducted before June 1996. Eventually, one or both of the systems will be recommended by the National Data Broadcasting Committee to the Commission as a standard(s) for digital data broadcasting within the current NTSC channels. I encourage the Commission to carefully evaluate the recommendation of the NDBC because it is a very low cost way for broadcasters and consumers to begin testing various experimental digital broadcast applications, thereby learning about producer costs and consumer preferences, and ultimately leading to enjoying the benefits of digital broadcasting.

System Development

The advantages of systems like Digideck are that it is possible to start limited digital broadcasting in NTSC channels without having to build new towers, installing new transmitters or antennas. Digideck, for example, only requires changing the encoder or exciter in a current TV transmitter, installing a computer work station, and perhaps making a change to the studio-to-transmitter link

(STL). But there is no requirement to replace the entire production and distribution system. I should note that although the Digideck and WavePhore systems have relatively high speed transmission speeds for data (much higher, for example, than telephone lines), the transmission speed is not high enough to support full motion video in real time. Thus the applications for these systems will necessarily be limited to text, graphics, photographs and other digital content that is not real time video.

Simultaneously, Datacast Partners is also working on the development of a decoding device for the Advanced Television Channel that would decode the digital bitstream and display it on computers. This add-in card will likely be more expensive than the card to decode the NTSC data bitstream. Again, I emphasize that the NTSC approach to digital data distribution is an interim approach but one that we feel is important given that (i) computers are selling extremely rapidly in the marketplace; (ii) broadcasters can quickly provide service to these computers; and (iii) such service will be a laboratory for experimenting in digital broadcast applications.

Ultimately, when ATV channels are fully activated, and when consumers have moved in sufficient numbers to digital receivers, digital broadcasting will be characterized by the full range of multimedia content, including video, graphics,

audio, text, still photographs and data that can be distributed to much more intelligent devices than today's current television receivers.

If, for example, we look at only what 500 Kbps can do through the Digideck approach, it is fairly impressive. At 500 Kbps, the data transmission is 25 times faster than digital cellular and 8 times to 60 times faster than any existing wireless distribution system.

And, for tomorrow, the new ATV channels will have a data rate of up to 20 Mbps which is 13 times faster than T-1 lines and 300 times faster than ISDN lines. Even when broadcasters will be transmitting HDTV pictures, the data throughput for additional services can be as high as 13 Mbps per channel.

Applications

Finally, we come to the question of applications. What digital content or applications are likely to be broadcast? As mentioned earlier, the NTSC implementation of digital broadcasting is very limited, meaning that the total bitstream is only a fraction of what will be possible with the Advanced Television Channel.

Much of the digital data broadcasting will be related to existing programs on broadcast distribution systems. Storm warnings, school closings, and other specific emergency data can be transmitted. During newscasts additional text and graphics about news stories can be sent to computers for later consumption and this content can be ad supported. Or during popular serial programs, still photographs of the program stars can be downloaded to computers. During sporting events, scores and statistics can be continuously broadcast to computers for display at the will of the consumer. During children's programs, educational and interactive material can be sent to computers for use by children and again this digital content can be ad supported.

One item we are particularly keying on is the support of current marketing campaigns. Today, the typical television advertisement is 30 seconds in length, but it gives the consumer very, very little in terms of information about the product or service. These ads work quite well for increasing brand awareness, but they provide little supporting information to help make the purchase decision. Yet, some of these purchase decisions are heavily information dependent. In today's information society, the television medium needs to have the capability of providing more information to support the consumer's information needs. As an example, a televised advertisement for a new car tells the consumer very little about the car. But, in digital broadcasting the advertiser could distribute a multimedia brochure about the car that explains prices, options, prices of the

options, photographs of other models, colors, locations of local dealers, inventory available at local dealers, etc. The point here is that current real-time advertising will not change in digital broadcasting, but digital broadcasting permits much more information to be transmitted about products that support the advertising campaign. And, of course, it is advertising that enables broadcasting to be both free and universal.

Another area we are exploring is the application of digital broadcasting as it relates to the Internet. Digital content contained on popular home pages could be continuously broadcast through digital broadcasting without the requirement that the consumer sign up for Internet access and pay for access to the content. Digital broadcasting could be used as the lowest cost access to the Internet with the highest speeds available, again using the concept of asymmetrical digital networks. High speed Internet access could be achieved by consumers signaling via telephone lines and a computer modem that they want certain content in the Internet and then having this content data broadcast to them directly via digital broadcasting. Given the high speed nature of digital broadcasting and the fact that broadcasters transmit locally, millions of consumers could have extremely low cost access to Internet home page content.

Conclusion

The transition to digital broadcasting is an extremely exciting time in the broadcasting business and will provide many new services for consumers that are not now possible through analog transmission. My company is working on the developing such new services and by exploring the deployment of a limited form of data broadcasting through existing NTSC channels. The purpose of starting in existing channels is that this will give us the experience at developing digital content and broadcasting it to consumers. It also will give consumers the experience of receiving these broadcasts into computers where they can enjoy low cost access to new digital content. As the experience of both broadcasters and consumers grows both will be better positioned to enjoy the fruits of digital broadcasting in the Advanced Television Channels when they are assigned.